AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listing of claims in the application:

LISTING OF CLAIMS:

1. (Currently amended) A method for automatically calibrating a color image scanner, comprising:

scanning a white region of a color calibration chart;

reading first data of the white region;

converting the first data of the white region to a digital first R.G.B. value;

amplifying a maximum value in each pixel to a predetermined region;

adjusting gain of an optic mechanical module, wherein the step of adjusting gain includes the steps of:

determining if a current pixel value exceeds the maximum value;

subtracting an adjusted value from a current gain value when the current pixel value exceeds the maximum value;

adding the adjusted value to the current gain value when the current pixel value is smaller than or equal to the maximum value;

determining if a sensed pixel value is in the predetermined region; and

adjusting the gain value according to a difference between the maximum value and the sensed pixel value;

scanning a color region of the color calibration chart;

reading second data of the color region;

converting the second data of the color region to a digital second R.G.B. value;

summing the digital first R.G.B. value and the digital second R.G.B. value, and further averaging the summed digital first and second R.G.B. values;

calculating an averaged compensating value for scanning; and

scanning an image and compensating the scanned image referring to the digital summed R.G.B. values and digital averaged R.G.B. values, wherein said calibration of said color image scanner is independent of a light source.

2. (Currently amended) The method as claimed in claim 1, wherein the first data of the white region or the second data of the color region is accessed by using an image sensor.

3. (Currently amended) The method as claimed in claim 1, wherein the first data of the white region or the second data of the ~~white region or~~ color region~~;~~ ~~respectively,~~ is respectively converted to the digital first R.G.B. value or the digital second R.G.B. value by using an ~~analog/digital~~ analog-to-digital converter (A/D converter).

4. (Original) The method as claimed in claim 1, wherein the pixel is represented by 8 bits and the maximum value is set within 250.about.255.

5. (Canceled).

6. (Original) The method as claimed in claim 1, wherein the step of calculating averaged compensating value is performed by using a relation between a sensed value (R, G, B) and a real value (r, g, b), the relation is:

$$R = a_{11} * r + a_{12} * g + a_{13} * b + c_1 \quad (1)$$

$$G = a_{21} * r + a_{22} * g + a_{23} * b + c_2 \quad (2)$$

$$B = a_{31} * r + a_{32} * g + a_{33} * b + c_3 \quad (3)$$

wherein a_{ij} (i, j=1, 2, 3) are relative coefficients between the sensed value and real value, and c_1, c_2, c_3 are minimum values of the sensed value.

7. (Original) The method as claimed in claim 6, wherein the equations (1)~(3) are expressed via matrices as following:

$$[R\ G\ B]^T = A\ [r\ g\ b]^T + C \quad (4)$$

wherein matrices A and C are written as:

$$A = \begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{bmatrix} \qquad C = \begin{bmatrix} c_1 \\ c_2 \\ c_3 \end{bmatrix}$$

8. (Previously presented) The method as claimed in claim 7, wherein the step of scanning and compensating is performed by using an inverse function of equation (4) as:

$$[r\ g\ b]^T = A^{-1}\,([R\ G\ B]^T - C)$$

whereby the real value (r, g, b) is obtained.